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# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

No. 138



FOREIGN BROADCAST INFORMATION SERVICE

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7 November 1980

# WORLDWIDE REPORT

## TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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UK REQUESTS JAPAN'S AID IN DEVELOPING TELECOMMUNICATIONS INDUSTRY

OW251159 Tokyo KYODO in English 1103 GMT 25 Oct 80

[Text] Tokyo Oct 25 KYODO--The British Government has requested Japan's technical cooperation to further develop its telecommunications industry and may ask Japan to open its bidding for contracts with the Nippon Telegraph and Telephone Public Corporation to foreign firms, Japanese industry sources said Saturday.

Jonathan Solomon, British undersecretary for industry, asked for Japan's technical cooperation in talks with the International Trade and Industry Ministry, NTT and Japanese communication machinery makers during his two-week stay which ended Saturday.

Adam Butler, industry minister in charge of telecommunications, will visit Japan next February to discuss concrete plans for the cooperation. Butler may also demand that Japan permit foreign bids for contracts with NTT, according to the industry circles.

Japan and the United States are currently negotiating the telecommunications equipment procurement issue.

The British Government plans to permit foreign bids for contracts in the country's telecommunications business to end the state monopoly on condition that British makers would not be damaged and markets would be reciprocally opened.

There is little possibility that Britain would permit Japan, which has a closed market in the telecommunications field, to bid for British contracts.

However, Britain needs Japan's cooperation in communications technology, especially in fields such as telephone electronic switchboards and micro-waves, large-sized antennae for satellite communications and computers.

Butler is expected to call on Japanese companies to take part in the British telecommunications field when he comes to Japan.

CSO: 5500

WORLDWIDE AFFAIRS

BRIEFS

ARGENTINE DELEGATION TO ITALY--Communications Secretary Eduardo Oscar Corrados left for Italy where he will head the Argentine delegation to the meeting of the international satellite telecommunications organization. [Buenos Aires Domestic Service in Spanish 2000 GMT 16 Oct 80 PY]

USSR-ITALIAN NEWS AGREEMENT--Moscow 24 Oct (TASS)--An agreement on cooperation in the sphere of exchange and circulation of information between TASS and the news agency ITALIA was signed today in Moscow. The agreement was signed by TASS director general Sergey Losev and director general of the news agency ITALIA Roberto Nobili. [Text] [LD260434 Moscow TASS in English 1224 GMT 24 Oct 80 LD]

CSO: 5500

INTER-ASIAN AFFAIRS

BRIEFS

SRI LANKA-INDIA PHONE LINK--A microwave telephone link with India will become operational from next year, posts and telecommunications minister D. B. Wijetunga told a meeting in Kurunegala 20 October that once this system is installed direct dialing facilities to India will be available. [BK220601 Colombo International Service in English 1045 GMT 21 Oct 80 BK]

CSO: 3500

AUSTRALIA

BRIEFS

ETHNIC TV--A new television channel aimed at different cultural groups has begun transmission in Melbourne and Sydney. The acting posts and telecommunications minister, Mr Fife, says the programs will help Australians of all cultural backgrounds to appreciate the diversity of their nation. [Text]  
[OW241355 Melbourne Overseas Service in English 1130 GMT 24 Oct 80 OW]

CSO: 5500



FRENCH FIRM TO INSTALL SATELLITE EARTH STATION

Dacca THE BANGLADESH TIMES in English 29 Aug 80 pp 1, 8

[Text] An agreement has been signed on Thursday between Bangladesh Telegraph and Telephone Board and GIE Telspace of France for setting up of an Intelsat standard 'B' earth station near Kaliakoir, about 26 miles from the city, according to Press release.

The earth station will establish direct telecommunication links with a number of neighbouring countries, like Nepal and Burma and will also serve as a stand-by to the existing Betbunia Satellite Earth Station.

Initially, the station will provide up to 24 telephone-type channels and also colour, black and white TV transmission and reception facilities. It will be possible to expand the station capacity to 60 telephone-type channels in future.

The total cost of the project is about Tk 10 crore, of which more than Tk 5 crore is in foreign exchange, which has been made available under French Technical Assistance.

The station is expected to be complete by April '81.

CSO: 5500

## SATELLITE COMPLETES 100 DAYS ORBIT

## Systems Functioning

BK250918 Delhi Domestic Service in English 0830 GMT 25 Oct 80

[Text] Indian satellite Rohini put into a near-earth orbit on 18 July from Sriharikota Space Center today completed 100 days in space. Director of the Vikram Sarabhai Space Center told UNITED PRESS OF INDIA that all systems on board are functioning perfectly and the Rohini is sending powerful signals. The satellite planned to last only 3 months is now expected to remain in orbit for 1 and 1/2 years.

## Next Satellite Launch 1981

BK260938 Delhi Domestic Service in English 0240 GMT 26 Oct 80

[Text] The next Rohini satellite is to be launched from the SLV-3 early next year. Disclosing this to UNITED NEWS OF INDIA Prof U.R. Rao, the director of the Indian Space Research Organization Satellite Center, Bangalore, said that it will contain a camera system for measuring landmarks. Prof Rao said that the Earth observation satellite Bhaskara is working well after being launched in June last year.

The director of the Vikram Sarabhai Space Center, Dr Vasant Gowrikar, told newsmen in Pune that the country will be able to launch its own communications satellite in geostationary orbit in the next 10 years.

## News Pool Satellite Link

BK241115 Delhi General Overseas Service in English 1000 GMT 24 Oct 80

[Text] The nonaligned news pool will have around the clock link with a satellite to feed news agencies of the member countries. Stating this to newsmen in New Delhi, Information and Broadcasting Minister Vasant Sathe has said that plans to strengthen the news pool were also discussed during his recent visit to Paris. Sathe also said that the film and television institute in Pune will be made a regional center of UNESCO and its functions and capacity to train students will be upgraded. He said the suggestion to upgrade the institute was made at the UNESCO conference at Belgrade.

CSO: 5500

BRIEFS

CIRCULAR PROTECTING COMMUNICATION--The Xinjiang Regional People's Government recently issued to all localities and all departments concerned a circular on protecting the safety of communications lines. The circular gives specific regulations concerning the protection of communications equipment, including overhead communication lines and underground communication cables. The circular also emphatically points out that those who cause accidents by violating regulations will be investigated and assigned responsibility in accordance with the seriousness of the accidents and asked to pay for the economic losses and that those who deliberately sabotage communications lines or disrupt communications will be strictly dealt with in accordance with the relevant articles of the criminal law of China. [Text] [OW240515 Urumqi Xinjiang Regional Service in Mandarin 1620 GMT 23 Oct 80]

CSO: 5500

## THAILAND

### BRIEFS

**EXPANSION OF TELEPHONE NETWORK--**Major General Wasutphan Thawiwong, the head of the Telephone Organization of Thailand, has disclosed that the Telephone Organization is planning to borrow an additional 7 billion baht from the World Bank in order to build additional projects as extensions of the 1977-1984 development projects. At present, this project is being considered by the National Economic and Social Development Board. This expansion project consists of installing approximately 290,000 more telephones in Bangkok and in the various regions. After the project has been considered by the National Economic and Social Development Board, officials of the World Bank will come to carefully inspect the plans for the final time in order to discuss guaranteeing the project. It will then be presented to the cabinet for consideration. The head of the Telephone Organization of Thailand stated that the amount of money to be borrowed from the World Bank may change because it must first be determined how much financial support the state can provide. The rest will be borrowed. As for automatic long-distance telephone service, the head of the Telephone Organization stated that, next month, this service will be opened between the capital and all parts of the southern region from Ratchaburi on south. After that, automatic long-distance service will be opened to Aranyaprathet, which is the final point. Following this, service will be opened so that each of the regions can contact each other. [Text] [Bangkok BAN MUANG in Thai 16 Sep 80 p 16] 11943

**TELEPHONE SERVICE TO SOUTH--**Mr Phairot Chuprawat, the head of the Thung Song Region 7 Telephone Division, Telephone Organization, Administration Section, stated that beginning at 0800 hours today (the 6th), the Telephone Organization will open direct-dial telephone service in the 075 long-distance telephone area code region. But concerning the Nakhon Sithammarat, Thung Song, Pakphanang, Thasala, Trang, Kantang and Krabi Province telephone exchanges, if calls are made within the area of the above area code, the caller should dial only the 6-digit number desired. As for the service charge, the Telephone Organization has set the rate at 2 baht per 30 seconds. If the caller wishes the operator at the exchange in each province to assist in placing the call, the charge will be increased 10 baht per call during the day and 20 baht during the night, except if the

caller uses the services of and pays cash at the exchange or if a public telephone is used. [Text] [Bangkok BAH MUANG in Thai 6 Sep 80 p 6] 11941

**RADIO THIAHONG REGISTRATION**--Police Major General Suchat Phuaksakon, the director-general of the Posts and Telegraph Department, has stated that, at present, there can be no exceptions to registering or requesting permission to use radio telephones, whether used at home or in business. This is because this is something that is regulated in accord with the Radio Telephone Communications Act. This law has stipulated as a matter of principle that equipment that uses frequencies, regardless of whether such equipment is imported or whether it is in use in the country, must all be regulated. Thus, the Posts and Telegraph Department must regulate the use of radio telephones, or other equipment that uses radio waves, in accord with the law. The director-general of the Posts and Telegraph Department stated that even though there can be no exceptions to requesting permission to own and use radio telephones, which is a new electronic development, the Posts and Telegraph Department will allow people who own such equipment and who live in the provinces to request permission by mail so that those people do not have to make a trip to request permission at the Posts and Telegraph Department, which is located in Bangkok. Those requesting permission by mail must give their name and address and send a copy of their identification card, government official's card or state enterprise employee's card. [Text] [Bangkok BAH BAT in Thai 9 Sep 80 p 3] 11942

**NEW TV STATION**--A new television station of the public relations department will soon be set up in the province of Trat. Than, deputy government spokesman Ratchat Chanthasoung reported yesterday. The project which will cost the government nine million baht was approved by cabinet during the meeting on Tuesday (14 October), said the spokesman. The construction of the station is due to be completed within one year, he said, adding that the project was aimed at enhancing the efficiency of information services and public relations. [Text] [16/10/77 Bangkok SAVER in English 16 Oct 80 p 1, 2A]

## HOA SEN SATELLITE EARTH STATION NEARS COMPLETION

## Construction Carried Out in Record Time

Hanoi LAO DONG in Vietnamese 10 Jul 80 p 3

[Article by Tran Lei: "Hoa Sen [Lotus Blossom] Begins To Blossom"]

[Text] On the morning of 24 June 1980, the 23rd and final section of the antenna tower of the Hoa Sen Satellite Signal Receiving Station was properly installed by highly experienced workers of Machine Installation Enterprise Number 1 of the Ministry of Building, thus bringing the tower to its final height of 125 meters. Against the vast blue sky, the two red flags of the Soviet Union and Vietnam, reflecting their steadfast and militant friendship, fluttered from atop the tall tower, giving further proof of the close cooperation between Vietnam and the Soviet Union.

This was not the first time that these installers had constructed a project exceeding 100 meters in height. In past years, they frequently and successfully erected power line towers across wide rivers, erected sections of 260 meter towers and erected the Tam Dao television antenna at an altitude of 1,000 meters in extremely difficult terrain. However, it can be said that they never completed a tall project in such a short amount of time.

Our Soviet friends, speaking from experience and with professional caution, said that it would take 3 or 4 years for us to complete the modern Hoa Sen project, especially in view of the fact that it is a totally new project to us. However, in the spirit of overcoming difficulties, with firm resolve, energy and confidence and relying upon our corps of machine installers, we guaranteed that we would complete the project in a very short amount of time. In the space of only 2 months, May and June 1980, we virtually completed the main projects so that the cadres and workers of the installation crew could install the sophisticated and complex mechanical structures. The installers stayed at the seaport and riverport for months on end in order to promptly unload dozens of ships carrying equipment for the Hoa Sen station.

In less than 1 month, thanks to the experience of the crane operators, they safely delivered 700 tons (including packing crates) of equipment to various places to be installed. Lacking spare parts and construction materials, they made innovations and improvised, obtaining 7,000 meters of cable of various types and 11 metric meters of railroad ties with which they buried the temporary anchor and jacks; they even made their own winches and auction grips in order to maintain the rate of installation. When the tower sections arrived and finding that they lacked "mam" (a copper-lead-nickel alloy), the workers collected scraps of metal, which they recycled, producing 60 additional kilograms of "mam" to weld the anchor cable ends, thereby insuring the erection of the tower on schedule.

In particular, when installing the 12 meter parabolic mirror in the main project, the Vietnamese machine installers made the innovation of joining two cranes of two different functions and heights. The chief of the unit, Nguyen Thai Tan, a highly experienced machine installer, and his unit, crane unit number 1, who had the honor of receiving a bouquet of flowers from President Ton Duc Thang on the occasion of the recent Nguyen Dan Tet, performed this difficult work. In the space of three and one-half hours and in front of all the Vietnamese and Soviet cadres and workers, the mirror was gradually raised into position. In the end, this "white lotus blossom" was perfectly placed on top of its 10 meter base. Comrade Valeri, the chief of the Soviet group of specialists, his face covered with perspiration, shouted a cheer of joy, embraced Tan and the other members of his unit and praised them profusely.

The completion of the erection of the 121 meter antenna tower was another astonishment in our Soviet friends. A specialist named Di-na [Vietnamese phonetic], who has worked hard with us for many years, said to me:

"Your very rapid transportation of the 400 tons of antenna equipment under the difficult conditions posed by your roads and bridges represents a record. However, assembling this huge quantity of iron and steel in a short amount of time here in this lowlying area and lacking materials and supplies was surely an extraordinary achievement. Our Vietnamese comrades have constantly searched for every way to use what they have in order to perform their work well. I am very proud to be working with you."

The general project engineer Tri-go-ri-e-vi-tru [Vietnamese phonetic], a highly skilled engineer, happily told me that on the evening of 23 June, the comrades at the Hoa Son station watched an entire soccer match played in Moscow. He offered the following evaluation of us: "You set the records: you set up the ground station and its antenna and performed the major jobs of the Hoa Son project in unsurpassed time!" Another Soviet, a person with 16 years experience in the machine installation trade, told me:



"I must confess, I found it hard to believe you at first. But in only a few days, I felt great admiration for the corps of Vietnamese craftsmen. Nguyen Thai Tan, Nguyen Van Dinh, Lai Duy Sinh and the others are fully worthy of being considered the equals of the skilled machine installers of the Soviet Union."

Our friends gave us unselfish praise and, in actuality, each Soviet comrade is a model of professional skill and a professional work attitude. On Saturday afternoon they worked overtime and attended a party that night; but, early Sunday morning, all of them were back at the workplace. Some were still feeling the effect of the burning sun of the day before and some were somewhat intoxicated but, after only a few minutes rest, they were back at work.

As we were putting the last section of the 125 meter antenna tower into position the machine installers at the Giang Vo Central Television Station were installing another mirror and a wave guide on the floor of the television tower. And, at the Posts-Telegraph Center on the bank of Hoan Kiem Lake, another crew of installers was completing the work of installing another mirror on its base.

At 1909 hours on 21 June, the Hoa Sen station received a signal from the Ita-xi-e-na 5 [Vietnamese phonetic] satellite at 53 degrees longitude east. At 0940 hours on 22 June, it received a color signal from Far East Satellite 85. As soon as this retransmission antenna is completed, once it has been tuned and once the various machines and pieces of equipment have been completely installed, Hanoi and the surrounding areas will receive television programs (or telegraphic conversations) directly from Moscow and the other capitals of the CEMA countries. Then, from the capital of the SRV, we will be able to make contact with the world so that mankind can understand us better and become closer to us. This will also provide us with the opportunity to talk with our friends in the world about our country. On 4 July, we watched a television program from Moscow. Thus, the Hoa Sen station is virtually complete. It is truly a beautiful, new expression of Vietnamese-Soviet friendship.

#### Station's Components Described

Hanoi QUAN DOI NHAN DAN in Vietnamese 13 Jul 80 p 2

[Article by Hoai Nam, engineer of the Posts-Telegraph General Department: "A Project of Warm Vietnamese-Soviet Friendship: the Hoa Sen Satellite Signal Earth Station"]

[Excerpts] The satellite signal ground station called Hoa Sen, a technical and cultural project given to our party and people by the party and people of the Soviet Union, has been put into operation.



For the first time in the history, radio signals have been put in use to meet the daily needs of Vietnam. The first launching of 36,000 kilometers in space, the *Star-21-a-m* [inter-satellite] satellite of the Inter-Sputnik [inter-satellite] system, which carries video and audio signals from the transmission of the first of the world and, at the same time, bring to us news and images of the political and social life, the cultural and scientific activities, the educational advances and technological innovations, the physical culture and sports movement and so forth of other countries.

#### Our Ground Station is Part of the Inter-satellite System

The inter-satellite (inter-satellite) satellite system organization was established on 15 January 1971, when the system received transmissions through the satellite, *Star-21-a-m* 1 and *Star-21-a-m* 2.

*Star-21-a-m* 4 serves the ground stations of the Soviet Union, the U.S., Poland, Czechoslovakia, Hungary, Bulgaria, India and so forth while *Star-21-a-m* 3 serves the ground stations of the Soviet Union, Vietnam, Afghanistan, Mongolia, Algeria and so forth.

Our ground station system consists of the main satellite receiving and transmission station and the television transmission system, which transmits signals from the main station to the television center and the telegraph, telephone and wireline centers in Hanoi.

The main satellite receiving and transmission station consists of a parabolic antenna system that is 12 meters in diameter and 28 meters tall and has a coefficient of efficiency of 0.1 in the transmitting mode and 0.7 in the receiving mode. The antenna's degree of amplification is 30 decibels; in addition, the receiving equipment includes signal distortion amplifiers, which are cooled by nitrogen gas, is a receiver. Frequency band of about 6 MHz and a component that reduces the receiving frequency to a certain frequency of 70 MHz. The transmitter will operate of television, telephone, teletype and other transmitters, has a frequency band of roughly 6 MHz and includes signal tuning modules and remote controlled equipment. The final stage television equipment has three radio channels with a band width of 6 MHz. The final stage equipment modulates and demodulates the telephone, telegraph, radio path and other signals by frequency.

The capacity of our earth station will enable us to manage a number of telephone, teletype, data transmission, radio, radio photo, newspaper page transmission and black and white as well as color television (receive and transmit) channels with the countries working through the *Star-21-a-m* 1 satellite in the Inter-Sputnik System. To establish communications with these countries, it is necessary to take the second leap forward. Additional

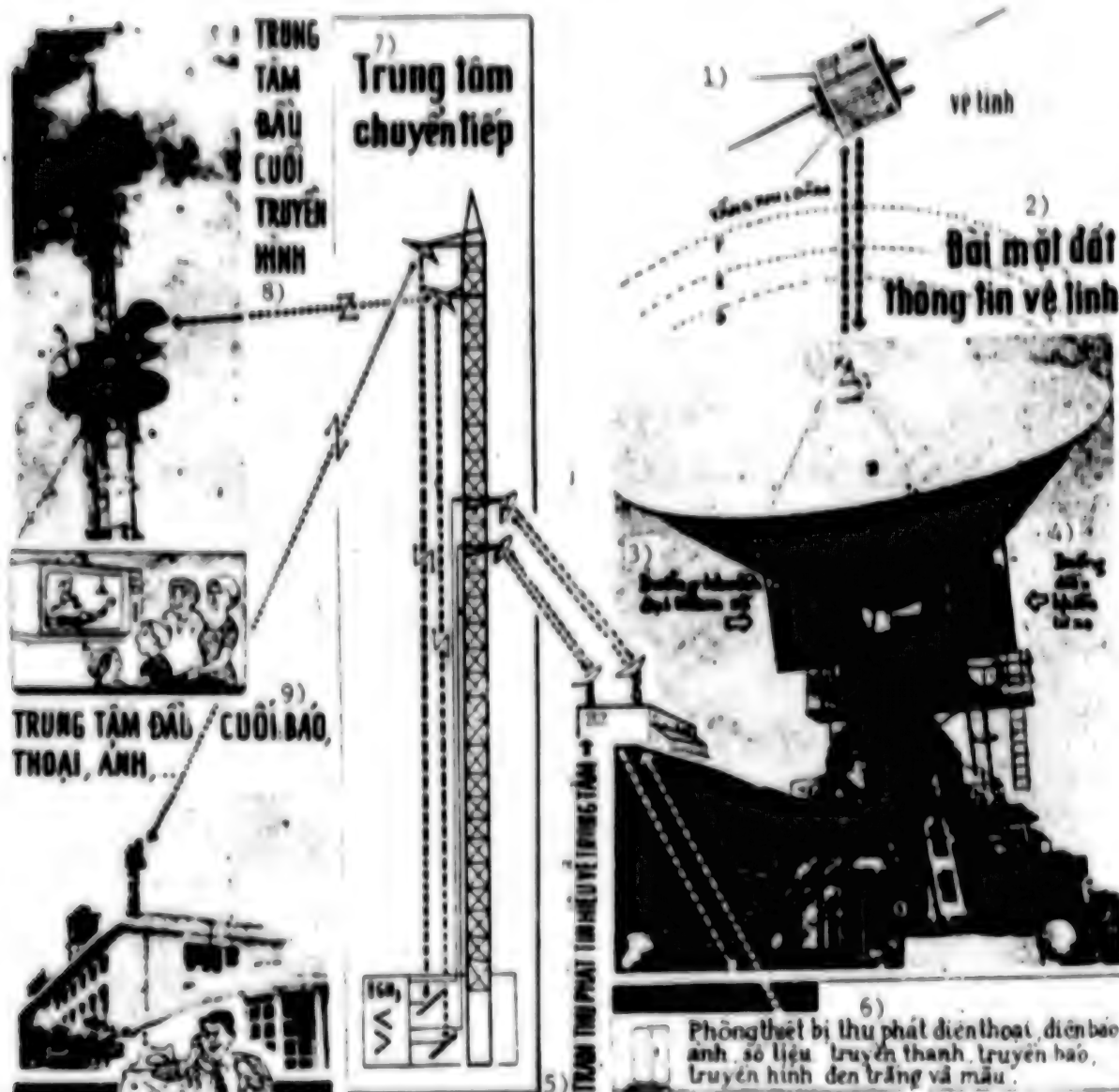
telephone and teletype channels can be added to the station to meet future needs for communications between our country and others.

The radio relay system consists of television, audio, telephone, teletype, radio photo and other signals transmitted over a 8 GHz frequency band but on two different frequencies that are separated from each other by horizontal and vertical poles on the mirrors of the parabolic antenna. Because of the long distance to the earth receiving and transmitting station, the entire line consists of four stations; one end station is located immediately adjacent to the earth receiving and transmitting station; it has an antenna that rises 114 meters above sea level and has receiving and transmitting equipment for television, audio, telephone, teletype, radio photo, etc. Next, there is an intermediary relay station at mid-distance on the line; this station has a 125 meter tower with two parabolic antennae suspended in the front, two flat, elliptical antennae together with two 45 degree reflection mirrors; within this station is receiving and transmitting relay equipment for television, audio, telephone, teletype, radio photo and other signals. Finally, there are two end stations; one station at the television center to receive and relay television and audio programs to a 51 meter antenna with corresponding equipment and one station in the teletype, telephone and radio photo center in Hanoi, which has a 39 meter antenna and the equipment to receive and relay signals to support the signal and liaison needs between our country and other countries.

Technologically, with the construction of the satellite signal earth station, we have rapidly put the modern technical advances of the world into use in the field of international communications in our country, thereby shrinking the gap in signal technology between ourselves and the fraternal countries, raising the quality of international communications and creating the conditions needed to participate in the In-te-cot-mot [Vietnamese phonetics] program in the field of space communications; on the other hand, through the building and use of this project, we have trained our corps of cadres and workers in this new technology.

With the centralized, unified leadership of the state, the well-coordinated, thorough guidance in capital construction, guidance that focused on key aspects, provided by the ministries and sectors that participated in the project's construction, with the enthusiasm of the Soviet specialists and the Vietnamese cadres and workers and through the socialist cooperation of the various sectors involved in the project, our first satellite signal earth station was completed in a short amount of time.

This precious gift from the country of Lenin to us was given exactly on the 25th anniversary of the signing of the Vietnam and USSR Economic Treaty (18 July 1955). The gift from the Soviet people to us is not only in the form of an advanced technical project, but also in the form of the intense, enthusiastic and unselfish work spirit of the Soviet specialists; considering



1. Satellite
2. Satellite Signal Earth Station
3. Parametric amplifier unit
4. Remote control unit
5. Station receiving and transmitting signals from and to centers
6. Building with receiving and transmitting equipment for telephone, teletype, radio photo, data transmission, radio, newspaper transmission and black and white as well as color television.
7. Relay center
8. Final stage television center
9. Final stage station for teletype, telephone, radio photo and so forth

our extremely difficult conditions, a beautiful image was presented by the Vietnamese and Soviet workers on the project. The image of Vietnamese-Soviet friendship, like the name of the project itself--the Hoa Sen [Lotus blossom] project--will forever be beautiful.

#### Soviet Aid Enables Construction

Hanoi KHOA HOC VA DOI SONG in Vietnamese 16 Jul 80 p 4

[Article by Tran Hoang Luong, the Posts-Telegraph Institute of Science and Technology: "A Flower of Friendship: the Hoa Sen Satellite Information Earth Station"]

[Text] On the day that the Soviet Union launched earth's first man-made satellite, a new era in the history of the development of man began. In particular, during the past 10 years, signal technology has taken long strides forward, strides marked by the widespread use of man-made satellites in communications.

If satellite signal technology did not exist, how could people view artistic performances and athletic competitions taking place tens of thousands of kilometers away and how could telephone conversations between parties in different countries of the world take place so rapidly and with such high quality?

At present, there are many global satellite information organizations, such as Inter-Sputnik and Intelsat, as well as regional and domestic information organizations.

In 1979, our country became the 10th member of the Inter-Sputnik Satellite Information Organization. The Soviet Union has built dozens of earth satellite signal stations in the Soviet Union and the countries of the Inter-Sputnik system.

The Soviet Union is helping us to build an earth station. The project has been carried out urgently in order to celebrate the 1980 Moscow Olympics. The Hoa Sen Earth Station is a valuable gift from the party, government and people of the Soviet Union to our people, one that helps us to carry out cultural, technical and economic development.

The Inter-Sputnik System is linked together through the Mon-nhi-a [Vietnamese phonetics] satellites, which have an ellipse shaped orbit, and the Xta-xi-o-na satellites, which are in a stationary orbit 35,800 kilometers above earth. Our Hoa Sen Station is linked to the system through the Xta-xi-o-na stationary satellite over the Indian Ocean.

The Hoa Sen Earth Station is a final-stage station in the Inter-Sputnik Satellite Information System. The system was designed to suit our tropical

climate and is mobile. The latest technical and achievements have been applied in the station's equipment.

The receiving-transmitting equipment, control equipment, inspection equipment and power source are housed in cubicles. The antenna system is positioned on a separate tower immediately beside the main technical building.

The antenna and the station operate normally at a wind velocity of 20 meters per second and can withstand a velocity of 40 meters per second as well as changes in temperature ranging from 1 degree to 45 degrees Centigrade and humidity as high as 98 percent.

The operating frequency band is 5,725 to 6,225 MHz in the transmitting mode and 3,400 to 3,900 MHz in the receiving mode.

The station can receive a color or black and white program and handle from 12 to 24 channels of telephone conversations; in addition, it provides for teletype and radio photo communications.

The main pieces of equipment consist of: a two mirror antenna system and an antenna turning system to track the satellite; telephone and television receiving and transmitting equipment; control, measuring and inspection systems; a water and wind cooling system and an electric power source.

The main, outer reflecting surface of the antenna is in the shape of a parabola measuring 12 meters in diameter--which is commonly called a parabolic mirror because it reflects radio waves the way a mirror reflects sunlight; there are also a small (1 meter in diameter) reflecting mirror in the shape of a hyperbola and one radiating plate in the shape of a funnel.

A receiving-transmitting main selector enables the receiver and transmitter to use a common antenna. Signals being received or transmitted follow separate wave guides of the receiver and transmitter. These wave guides must be connected to the antenna through a rotating joint so that the antenna can be easily turned and not affect transmission.

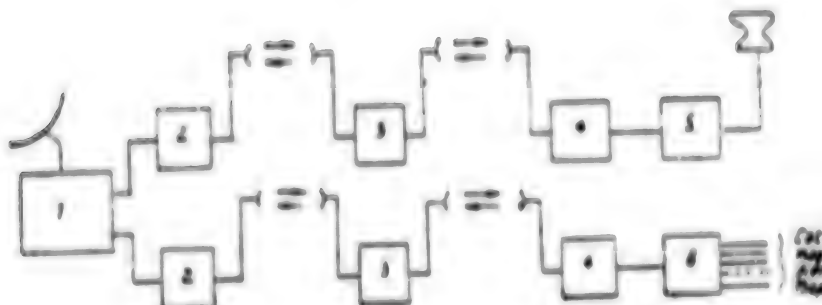
The antenna can be turned on a position angle and an ascent angle by means of a precise, satellite tracking system.

Although the Moscow Earth Station communicates with a stationary satellite, its tracking system has the same properties of the Orbita stations; the antenna must track the Molniya satellite, which is constantly moving through space.

The receiving and transmitting systems of the earth station, in addition to the main pieces of equipment mentioned above, also include microwave relay capabilities to transmit signals to the television, telephone and teletype centers and receive signals from them.



The equipment sections of the satellite signal system on earth (see diagram) consist of:



The earth station(1), the final-stage microwave station(2), the intermediary microwave station(3), the final stage station(4), the television center(5), the telephone center(6) and the teletype center(7).

The operational principles of the entire system are as follows:

The signal from the satellite, which consists of a video and telephone signal, is received by the parabolic antenna, passes through the channel selector module, follows the receiver wave guides to minor distortion parametric amplifiers, is amplified, converted to medium frequency and demodulated. The video and telephone signals are demodulated separately in modules placed before the parametric amplifiers.

The telephone signal, after being demodulated and filtered into separate channels, follows a coaxial cable to the channel modulator; there, it is converted into the basic frequency band and then sent to the microwave transmitter and transmitted to the intermediary relay station. From the microwave transmitter in the intermediary station, the telephone signal is transmitted to the final-stage telephone microwave station where it is separated into individual channels and transmitted to the telephone center.

The video and accompanying audio signals are also demodulated, amplified and transmitted by television microwave to the television center.

Conversely, when transmitting telephone and television signals, the signals will be transmitted by the telephone and television microwave lines to the earth station, tuned and transmitted to the telephone and television transmitters. The capacity of the telephone and television transmitters are combined and signals follow the wave guides to the parabolic antenna for transmission to the satellite.

There will be one or many microwave relay stations depending upon whether the distance between the earth station and the television and telephone centers is short or long.

Soon, television sets in the capital (channel 6) and in the areas receiving programs from the Tam Dao Broadcasting Station on channel 2 will carry broadcasts of athletic competitions at the 1980 Moscow Olympics on a program retransmitted from the Hoa Sen Earth Station by the Central Television Station.

The areas in the South and farther away that do not have microwave relay capabilities and, as a result, cannot view this program at the same time, will have to wait and view the tapes provided by the Central Television Station. Moreover, Moscow time is 4 hours behind our time, consequently, it will not be possible to view the entire broadcast because the program will be on television during work hours or well into the night.

Since the start of the year, the Soviet specialists and the cadres and workers of the building, posts-telegraph, communications and other concerned sectors in Vietnam have overcome many difficulties, made many innovations and increased the rate of construction, completing the key projects in order to put the Hoa Sen Earth Station into use in time for the 1980 Moscow Olympics.

7809

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BOARD TO PLAN COMMUNICATIONS NETWORK ESTABLISHED

Hanoi NHAN DAN in Vietnamese 19 Sep 80 p 1

[VNA News Release: "Communications Network Planning Board Established"]

[Text] On 17 September the Council of Ministers decreed the establishment of a Communications Network Planning Board to help the Council of Ministers draft plans for the communications network.

The Communications Network Planning Board is responsible for studying and presenting to the Government:

Draft plans for the national communications network, first of all concentrating on studying plans to create and deploy a posts and telecommunications network during the 1981-1985 five-year plan period.

Draft regulations regarding the relationships between the state communications network and the specialized communications networks of the ministries and sectors.

Guidelines for developing communications technology, distributing communications equipment, and distributing the necessary investment capital during the 1981-1985 five-year plan period and during the annual plan periods.

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## VIETNAM

### BRIEFS

VINH PHU BROADCASTING CENTER--On 10 September Vinh Phu inaugurated a powerful provincial broadcasting center. In the construction process, the cadres, workers, and engineers doing the construction came forth with many innovations to improve techniques, overcame many difficulties regarding transportation, installed more than 40 tons of machinery and equipment, leveled thousands of cubic meters of earth and soil, and met technical standards in safely erecting a transmission tower and transmitter system. With that new broadcasting center, the broadcasting station of Vinh Phu Province will broadcast four daily programs on the medium-wave band. [Hanoi NHAN DAN in Vietnamese 14 Sep 80 p 1] 5616

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## INTERNATIONAL AFFAIRS

### BRIEFS

'TASS'-HUNGARY AGREEMENT--Budapest--On 15 October a new agreement was signed between TASS and MTI on further developing the multifaceted cooperation between the two agencies in the sphere of information. The agreement was signed by TASS director general S. A. Losev and MTI director general E. Lakatos. [Text]  
[LD230829 Moscow IZVESTIYA in Russian 17 Oct 80 Morning Edition p 5]

CSO: 5500

NDOLA, LUANSHYA TVE PROBLEMS DETAILED

Looker TIMES OF ZAMBIA in English 16 Oct 80 p 3

[Text] A radio and television expert has explained why Ndola and Luanshya are having poor television reception.

Chief service engineer for Dabhis Radio and Television Services Mr Himmat Dabhi said in Ndola yesterday that the problem was known as "co-channel interference."

"This occurs between two or more stations operating on the same channel and is more active during high sun-spot activities which Zambia is passing through with 1980-81 being the peak in an 11-year cycle," he said.

"Those with good memories will remember that this last happened in 1969," Mr Dabhi added.

In this case, Television Zambia was interfered with by Ghana, Kenya and Sudan (Nigeria) television stations all of which transmit on channel four.

He said he had confirmed this at his workshop where he had been receiving these stations when Television Zambia went off the air. Voice of Kenya television was very clear.

To remedy this Mr Dabhi said Television Zambia transmission channel could be changed at the Kitale station to band three or have a low power transmitter in Ndola for Ndola and Luanshya viewers.

"The unfortunate thing is that this can only be corrected from the transmission end," Mr Dabhi said.

Ndola and Luanshya were in a fringe or a weak zone and Zimbabwe television which also transmits on channel four had the same problem which has now been rectified with installation of powerful transmitters.

Overlapping images caused by the poor transmission occurred after 21 hours because of adverse electrical weather conditions which were active after that time.

There was no comment from Television Zambia yesterday. Mr Dabhi's explanation follows complaints from viewers some of whom have written letters to this paper demanding an explanation which has since not been given.

Zambia Broadcasting Services (ZBS) chief engineer, Mr Churchill Mutale, said in Lusaka yesterday, that it was possible for a country outside Zambia to interfere with transmission.

ZBS, he said, was transmitting at a low frequency and any station outside Zambia using bigger and more powerful transmitters could jam the transmission.

He said the Copperbelt was the only area using band one while Lusaka was on band three. Lusaka used to experience the same problem some time back before the change.

ZBS would change all transmitters on the Copperbelt, and these had already been bought.

CSO: 5500

## TELSET TO BEGIN OPERATION ON TEST BASIS

Helsinki HELSINGIN SANOMAT in Finnish 23 Sep 80 p 21

[Article by Jyrki Iivonen: "Picture Tube Newspaper Expands Throughout Finland"]

[Text] The picture tube newspaper or TELSET is indeed becoming a supplement to the traditional means of mass communication, newspapers, radios, and television.

The publishing companies and the telephone company have already established TELSET corporations or agreed upon the commencement of test operations in Helsinki, Tampere, Lahti, and Jyvaskyla. The starting of test operations is being considered in Turku, Kotka, Vaasa, Oulu, Kuopio, Kajaani, and Joensuu.

The interest expressed by the newspaper houses in the TELSET system is primarily a result of the fact that in the future they do not want to lose their home on the traditional means of mass communication.

Another incentive is that according to estimates there will be more than 100,000 TELSET viewers by the end of this decade. Then there will no longer be any doubts about the feasibility and profitability of this operation. At this time the primary subscribers to this system are enterprises.

The establishment of TELSET is relatively inexpensive compared to newspaper publication. The initial expenditure for a company equipped with an information bank are approximately 1 million markkas. ATK [not further identified] services can easily be purchased from the companies. Information is transferred to viewers along existing telephone cable.

The printing of newspapers and particularly the cost of transporting them to subscribers will become more expensive. It is doubtful that there will be corresponding rises in the cost of distributing and transferring news by cable.

## TELSET's Trump Cards Are Speed and Memory

According to the Newspaper League the picture tube newspaper will not eliminate newspapers in this century, but will function as a supplement to

them. TELSET's trump cards are the speed at which information can be transferred and a nearly unlimited memory. On the other hand, newspapers are easier to carry and can be read anywhere at one's own convenience.

The TELSET Companies will not function as producers of information, but will maintain the computer network necessary for the transfer of information. The company, for its part, will rent information space for producers of information, which in turn can transmit information for general or private use for a fee.

The viewer needs a receiver or a color television to which TELSET equipment has been attached. The cost of a receiver fluctuates from 5,000 to 7,000 markkas. In addition to this, the viewer must rent a supplementary unit, by which the telephone is connected to the receiver.

#### Helsinki's TELSET Has Begun Operations

The TELSET system became a permanent arrangement last spring when the Helsinki Telephone Company, the Nokia Company, and the Sanoma Corporation established the Helsinki TELSET Company after a couple years of testing.

The Tampere Kirjapaino Publishing House and the Tampere Telephone Co-op reached an agreement on a joint TELSET operation. The agreement concerns test operations, on the basis of which the feasibility of commercial activities will be decided on after approximately a year and a half.

In July the Teletietopalvelu [Tele-Information Service] Company of Central Finland was officially registered in the trade registry. It is comprised of the newspaper KESKISUOMALAINEN, the Central Finland Telephone Company, and the Helsinki TELSET Company.

In the beginning of fall the Paijat-Ham Telephone Association and the Esa Publishing Company, which publishes SUOMEN SONAMAT, agreed in Lahti on joint TELSET testing, which will begin next year. Initially receivers will be installed only in certain public facilities.

#### A Company in Kotka By the End of This Year

In addition to the above locations, picture tube newspapers are being planned for Turku, Kotka, Vaasa, and Oulu. Also the leading newspapers in Kajaani, Joensuu, and Kuopio are considering the establishment of a joint TELSET operation.

In Kotka the local telephone association, the city government, and the Kotka Chamber of Commerce as well as the newspapers ETEENPAIN, ETALA-SUOMI, and KYMEN SANOMAT intend to establish a TELSET company by the end of this year.

Reijo Liukkonen, the managing director of the telephone association, states that in the initial stage the corporation intends to depend on Helsinki TELSET, from which information will be purchased.

"Later we will be able to set up our own information bank," states Liukkonen.

SAVON SANOMAT, KAIJALAINEN, and KAINUUN SANOMAT, which have conducted a joint study of the market, are planning a TELSET service for Eastern Finland.

"There is nothing on paper yet, but perhaps after a year such an enterprise will become a reality," stated a spokesman of SAVON SANOMAT. "The marketing of TELSET to the general public is, however, a question of the distant future,"

VASABLADT's Managing Director Erik Sundqvist states that a picture tube newspaper is taking shape and a TELSET company will be registered in the near future.

"The company is to be established before a TELSET monopoly law is put into effect," states Sundqvist.

TURUN SANOMAT intends to establish a TELSET operation in a few years. "At this time we are following the general development of this field and are considering various alternatives," states TURUN SANOMAT.

The Oulu newspaper KALEVA is planning a TELSET operation in Northern Finland.

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## FINLAND

### BRIEFS

NEW AUTOMATED PHONE EXCHANGE--The LM Ericsson Company will deliver 20 telephone exchanges to the Paijat-Hame Telephone Association by the middle of the decade. With supplemental procurements the agreement will extend into the year 1987 and its value will amount of 30 million markkas. The first deliveries will entail approximately 15,000 hook-ups. The concluded agreement first of all means that the Lahti and the Heinola telephone networks will be changed over to a digital operation, at which time it will be possible to expand telephone services. As this new technology develops an automatic wake-up service, conversation recording, and short number selection will become possible. To date 25 countries have chosen the computer-based system for their own telephone networks from the same supplier. In Finland a similar system is in use in Turku. The LM Ericsson Company has also concluded an equipment agreement with the Postal and Telegraph Service and the Tampere Telephone Co-op. The domestic level of component parts in the system is described as high since the LM Ericsson Company is responsible for planning, installation, and training with domestic resources and labor force. [Test] [Helsinki HELSINGIN SANOMAT in Finnish 21 Sep 80 p 41] 10576

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